22 Ton Petrol Log Splitter

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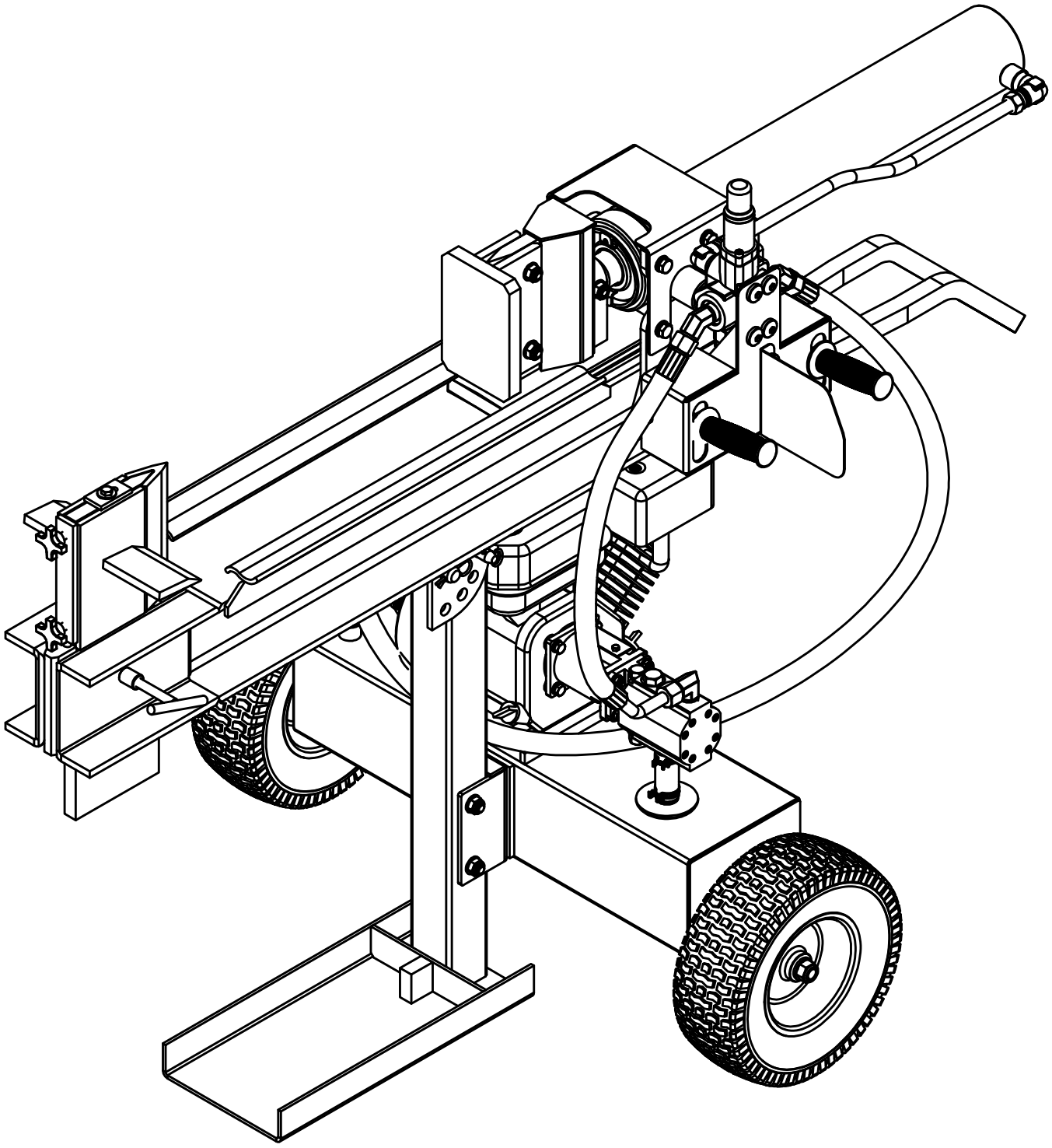
Model: FM22P



IMPORTANT: Read this manual fully before assembly and use and observe all safety rules and operating instructions

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Technical Specification

Maximum Log Diameter	600 mm / 23.5” (Duocut)
Maximum Log Length	550 mm / 21.65”
Splitting Force	22 ton
Cycle Time	12.5 sec
Working Positions	0, 30 & 60 degrees
Maximum Hydraulic Pressure	3625 psi
Hydraulic Oil Capacity (when cold)	13 litres / 2.86 gallons
Gear Pump	2 stage 50 lpm / 11 gpm
Hydraulic Oil	10WT A W32, ASLE H-150 or ISO32
Engine	208 cc 6.5 hp
Length (horizontal operation)	1.7 M / 5’ 6”
Width	0.9 M / 2’ 11”
Working Height (horizontal operation)	0.85 M / 2’ 9”
Height (vertical stored)	1.73 M / 5’ 9”
Dry Weight	230 kg / 506 lbs
Maximum Towing Speed	5 mph

IMPORTANT: Please read these instructions carefully. Note the safe operational requirements, warnings & cautions. Use the product correctly and with care for the purpose for which it is intended. Failure to do so may cause damage and/or personal injury and will invalidate the warranty. Please keep these instructions safe for future use.

Make sure to read and understand all the instructions and safety precautions as outlined in the Engine Manufacturer's Manual, packed separately with this unit. Do not operate this machine until you know how to properly operate and maintain the engine and how to avoid accidental injuries.

WORKSHOP/ENVIRONMENTAL SAFETY

Locate the log splitter on dry, level and solid ground in a suitable work area with adequate lighting. Keep the area clean and tidy and free from unrelated materials. Do not leave tools, logs or other items lying around where they could become a trip hazard.

DO NOT operate the log splitter in an enclosed area. The exhaust fumes contain carbon monoxide an odourless and deadly gas. Operate this unit only in a well ventilated area.

DO NOT operate the log splitter in areas where fumes from paint, solvents, or flammable liquids pose a potential hazard.

OPERATOR SAFETY

Remove ill fitting clothing. Remove ties, watches, rings and other loose jewellery, and secure long hair so that it is above shoulder level.

Wear protective clothing such as safety shoes and work gloves. Always wear safety goggles when operating the machine, everyday spectacles are not sufficient protection.

Maintain correct balance and footing, do not over-reach. Ensure the floor is not slippery and wear non-slip, protective footwear.

DO NOT allow untrained persons to operate the log splitter.

DO NOT operate the log splitter with the guards or guides removed.

DO NOT operate the log splitter when you are tired or under the influence of alcohol, drugs or intoxicating medication.

DO NOT operate the log splitter if the engines switch does not turn it on or off. Any petrol powered machine that cannot be controlled with the engine switch is dangerous and must not be used until repaired or replaced.

The log splitter must always be operated by one person only.

Keep hands away from moving parts of the log splitter.

Keep hands away from splits and cracks which open in logs. They may close suddenly which could cause serious personal injury. For this reason do not attempt to remove jammed logs by hand. A jammed log is a log which is only partially split and continues to grip the splitting wedge.

Be sure the engine is off before transporting the machine or performing any maintenance or service on the unit. Never transport, maintain or service a machine with the engine on.

SAFETY OF OTHERS

DO NOT allow another person to help you with a jammed log.

Keep children and unauthorised persons away from the work area.

The log splitter must always be operated by one person only. Other people must keep a safe distance from the log splitter especially when it is in operation.

Store the log splitter in a safe area away from children and other people not qualified to use the log splitter.

GENERAL SAFETY

DO NOT make any modifications to the log splitter.

DO NOT exceed the stated log capacity of the log splitter.

DO NOT use the log splitter for a task it is not designed to perform.

DO NOT force the log splitter to work beyond its specified capacity.

Ensure that there are no nails, screws or other foreign objects in logs to be split.

MACHINE USE AND CARE

Position the machine in such a way that it cannot move during maintenance, cleaning, adjustment, assembly and under storage.

Do not change the engine governor settings or over-speed the engine. The governor controls the maximum safe operating speed of the engine.
Do not run the engine at a high speed when you are not working.

The machine contains a static blade and a moving blade, keep hands away from both blades when operating the machine.

Avoid contact with hot oil, exhaust fumes and hot surfaces. Do not touch the engine or exhaust, these parts get extremely hot from operation and remain hot for a time after the unit is turned off. Allow the engine to cool before doing maintenance or adjustment.

If the machine should start to make an unusual noise or vibration, immediately shut off the engine, disconnect the spark plug wire and check for the cause. Unusual noise or vibration is generally a warning of trouble.

Maintain the machine. Check for misalignment or binding of moving parts, breakage of parts and any condition that may affect the machines operation. If damaged, have the machine repaired before use. Poorly maintained equipment can cause accidents.

Whenever you leave the operating position or if you have to remove processed material or debris from around the machine, always shut down the engine.

DO NOT change the splitting position while the engine is running. Various parts of the engine become very hot and contact can cause serious burns.
NEVER attach a rope, cable or other device to the control levers of the log splitter.
DO NOT tilt the machine while the engine is running,

Always stop the engine before moving the machine.
Do not alter or adjust any part of the machine or engine that is sealed by the manufacturer or distributor.
Always check the oil level of the engine before use.

Inspect all nuts and bolts to ensure they are tight and properly connected before using the machine.

Check the air pressure in the tyres prior to use and pay attention to sharp objects when moving the machine to prevent the tyres being pierced.

TOWING

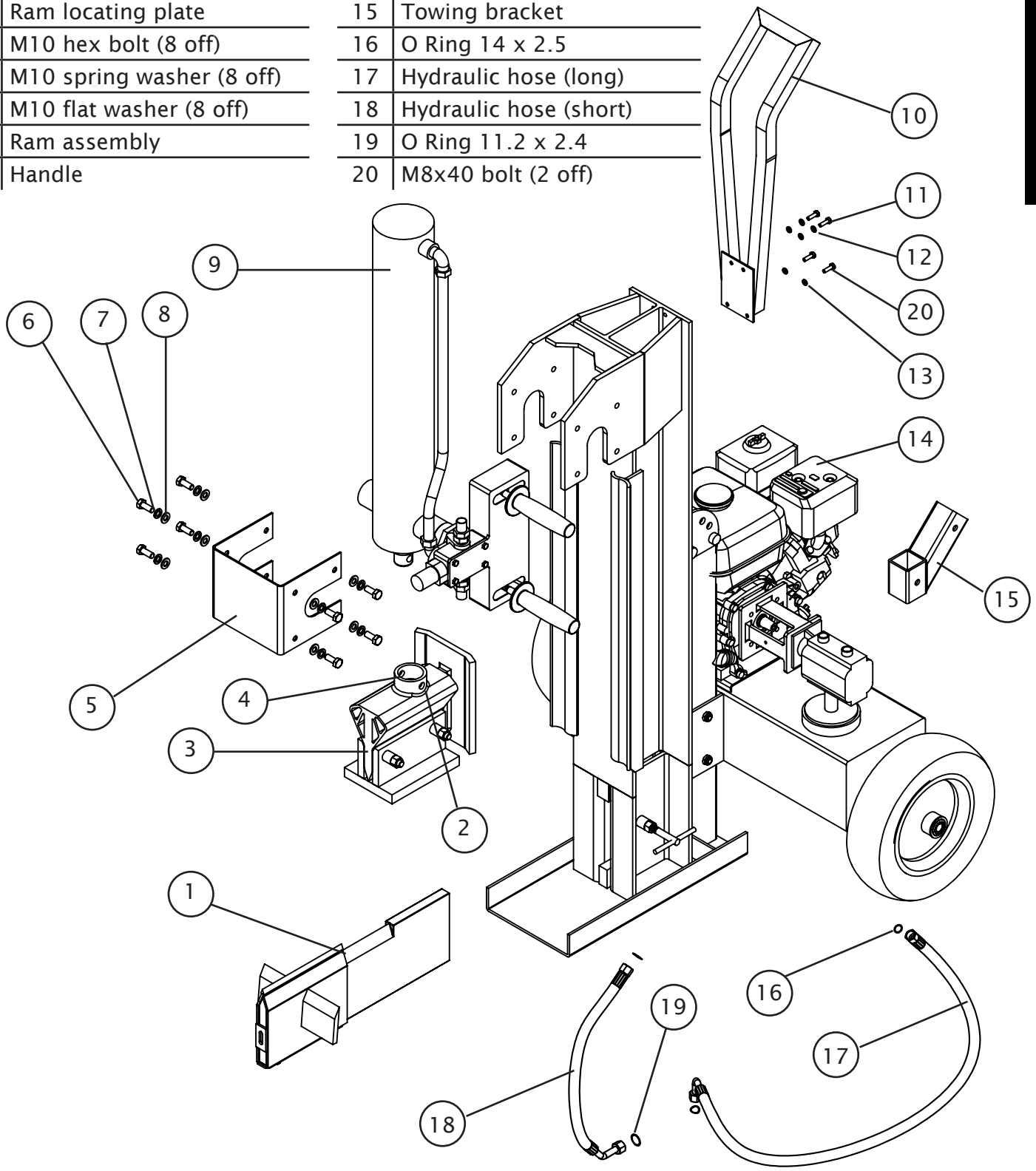
This log splitter is for off road use only. Never attempt to tow the machine on public, highways, roads or thoroughfares.
Serious injury or death can occur if towing safety rules are not followed.
Always secure and lock the log splitter to the vehicle hitch before moving.
Drive safely. Be aware of the added length of the log splitter.
Never ride or transport cargo on the log splitter.
Turn off the vehicle before leaving the log splitter unattended.
Block the log splitter wheels to prevent unintended movement.
DO NOT tow the log splitter if the tires are worn or will not hold air.
DO NOT exceed the maximum 5 MPH towing speed.

WARNING! The warnings, cautions and instructions referred to in this manual cannot cover all possible conditions and situations that may occur. It must be understood that common sense and caution must be applied by the operator when using the log splitter.

When not in use, store the log splitter in a safe, dry, childproof location.

1	Fixed Blade
2	M10 x 70 hex bolt (1 off)
3	Moving pusher blade
4	M10 Nut
5	Ram locating plate
6	M10 hex bolt (8 off)
7	M10 spring washer (8 off)
8	M10 flat washer (8 off)
9	Ram assembly
10	Handle

11	M8x20 bolt (2 off)
12	M8 spring washer
13	M8 flat washer (4 off)
14	Main assembly
15	Towing bracket
16	O Ring 14 x 2.5
17	Hydraulic hose (long)
18	Hydraulic hose (short)
19	O Ring 11.2 x 2.4
20	M8x40 bolt (2 off)



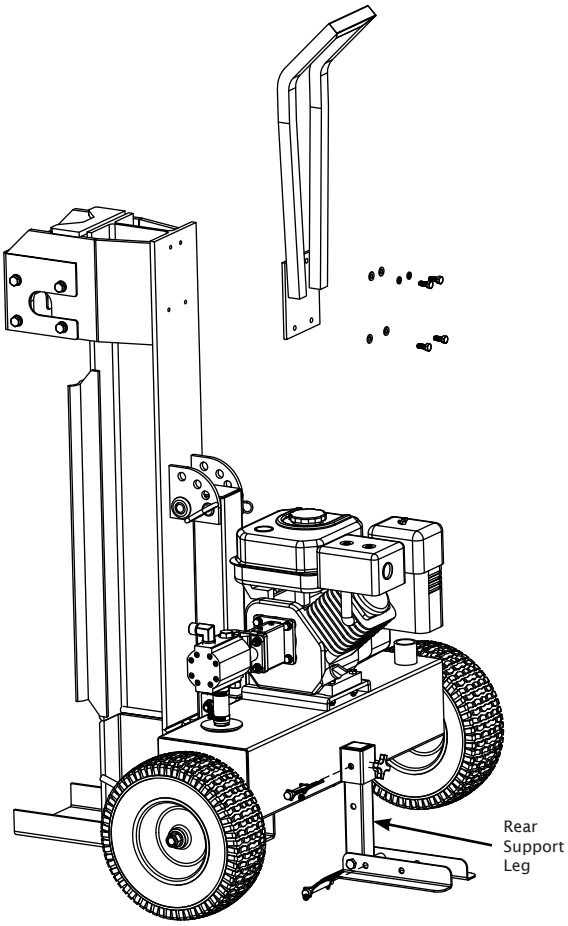
Before commencing assembly, check that you have all the required parts and the correct nuts and bolts and ensure you have read and understood these assembly instructions. Ensure the assembly area is clean and free of obstructions.

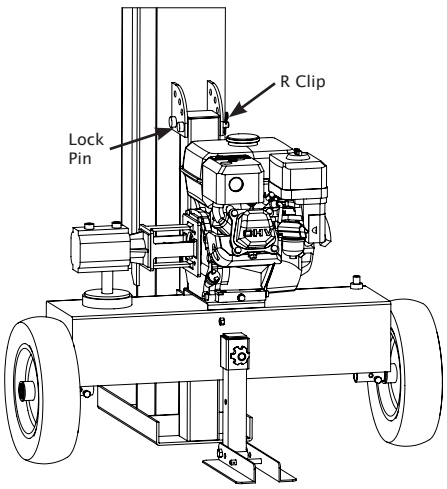
STEP 1

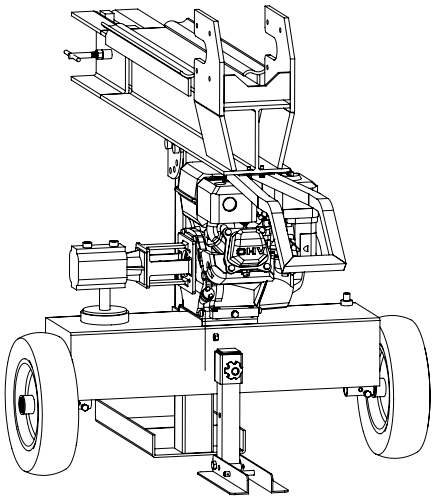
Secure the handle (10) to the beam using two M8x20 bolts (11), spring washers (12) and flat washers (13) at the top of the plate and two M8x40 bolts (20) with flat washers (13) at the bottom.

Note that the flat washer should be against the plate of the handle and the spring washer between it and the head of the bolt.

Lower the rear support leg and ensure it is secured with the lock pins.







STEP 2

To make it easier to support the ram assembly when installing it, the main beam should be rotated from the vertical position in which it was packed, to the horizontal position. Remove the “R Clip” from the end of the “Lock Pin” then remove the lock pin. Rotate the beam to the horizontal then replace the Lock Pin and R Clip.

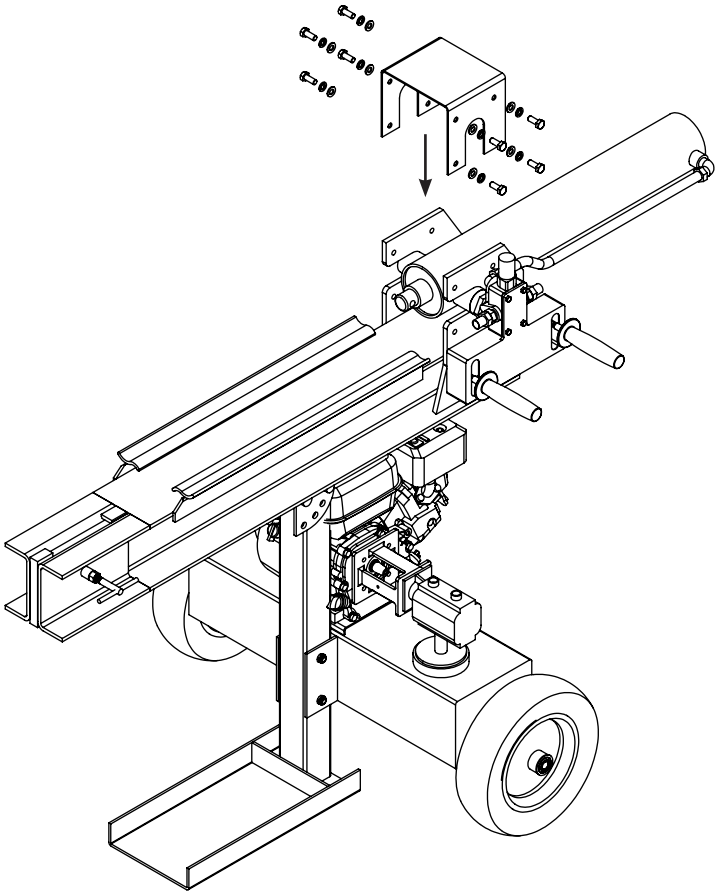
IMPORTANT: Parts of the log splitter (such as the ram assembly) are extremely heavy therefore it is recommended that assembly is undertaken by two persons so that one is able to support parts while the other secures them in place.

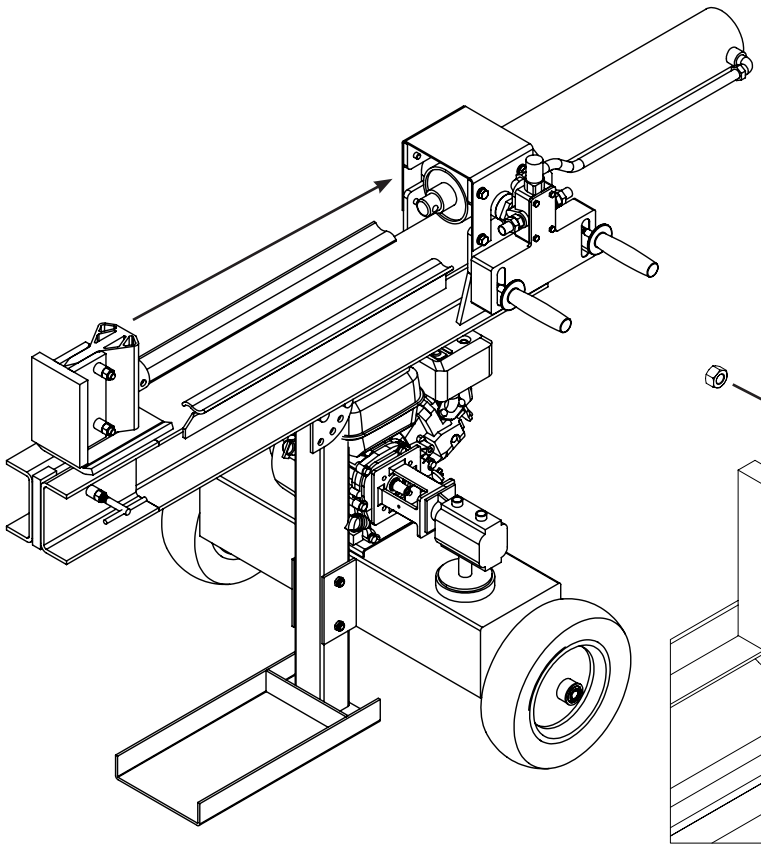
STEP 3

Lift the ram assembly (9) (caution it is heavy) onto the beam and engage the two round projections at the front, in the U shaped slots in the mounting plates. Note the control levers must be positioned as shown in the adjacent figure.

While one person supports the ram assembly, place the ram locating plate (5) over the ram so that the u slots engage with the round projections on the ram assembly.

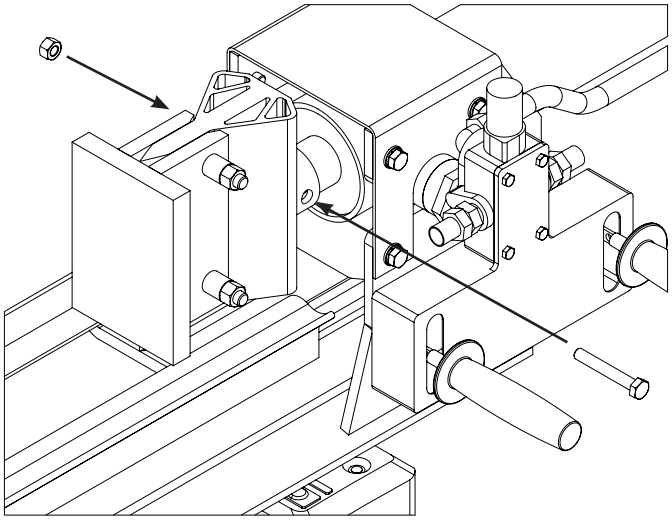
Secure the plate with the 8 M10 flat washers (8), 8 M10 spring washers (7) and 8 M10 bolts (6). The flat washer should be placed against the plate, with the spring washer between it and the head of the bolt.

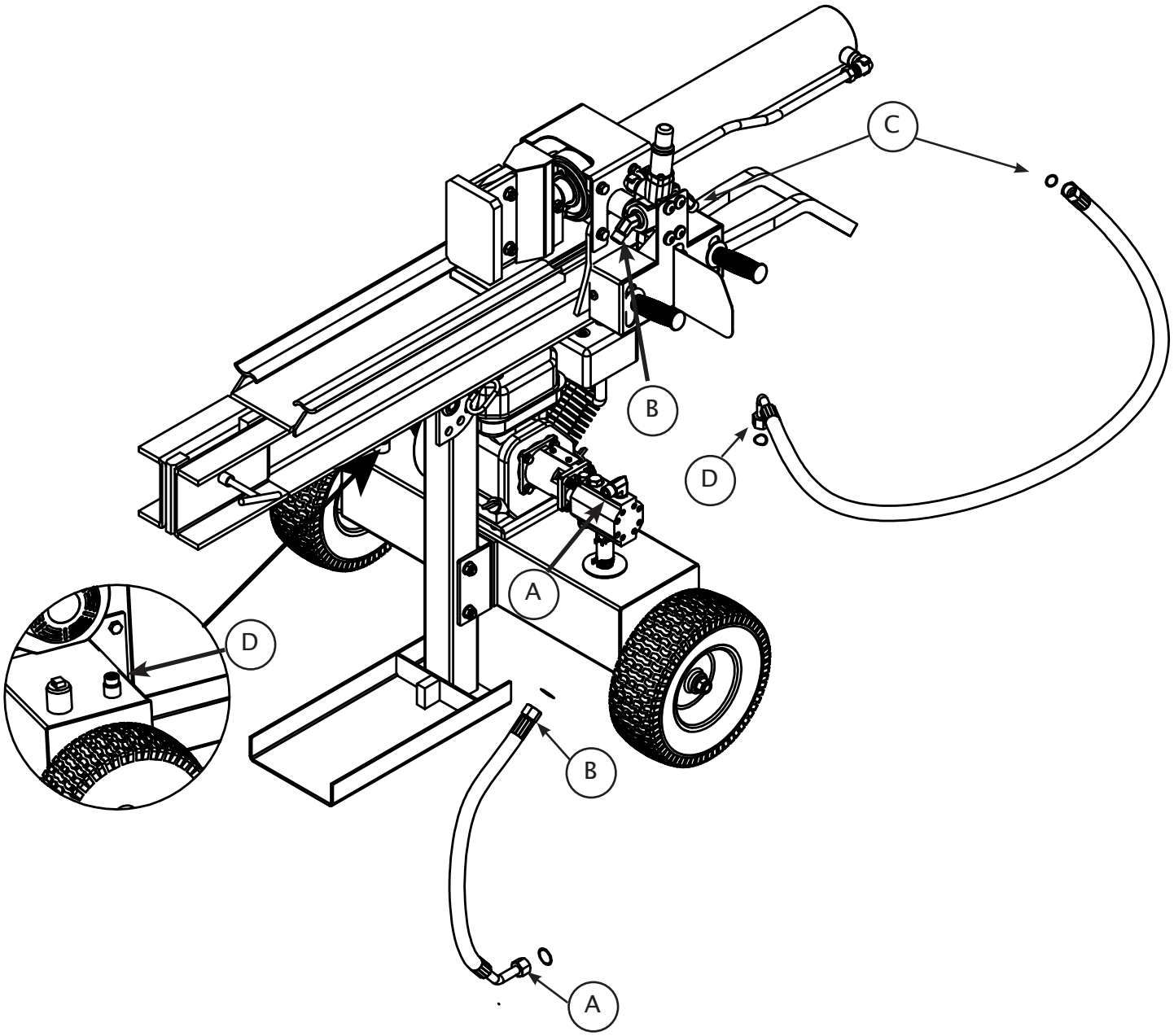




STEP 4

Place the moving pusher blade (3) on the end of the beam. Insert the base of the blade under curved guide rails and slide it along the beam so that the tubular mount on the back of the blade engages with the ram. Secure the blade to the ram with the M10 bolt (2) and M10 nut (4).





STEP 5

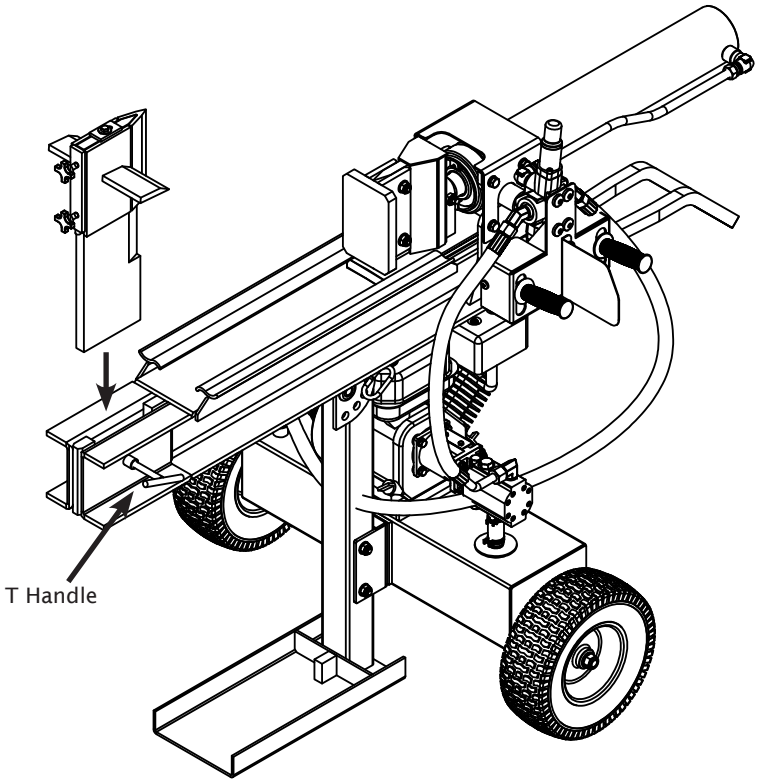
Connect the end (A) of the short hose (18) that has the bent connector, to the connector (A) on top of the pump. A small O Ring (19) must be inserted in the connection. Connect the other end (B) of the hose to the left hand connector (B) on the control valve. Use a small O Ring (19) in the connection.

Connect the straight connector (C) on the long hose (17) to the right hand connector (C) on the control valve. Use a large O Ring (16) in the connection. Connect the end with the bent connector (D) to the connector on the top of the oil tank (D) (adjacent to the oil filler cap). Use a large O Ring (16) in the connection.

IMPORTANT: Hoses need to be positioned were they are clear from the engine and cutting wedge. Make sure the hydraulic hoses do not touch any hot surfaces or cutting areas. Make sure all fittings are tight and secure before applying pressure.

STEP 6

Insert the fixed blade (1) into the slot in the end of the beam and set at the desired height by tightening the “T handle”



STEP 7

Add Engine Oil
Make sure the log splitter is on a level surface. Remove oil fill cap/dipstick to add oil. Refer to the separate owner’s engine manual for the amount needed of SAE10W-30 engine oil. Replace oil fill cap/dipstick. Check engine oil level daily and add as needed.

STEP 8

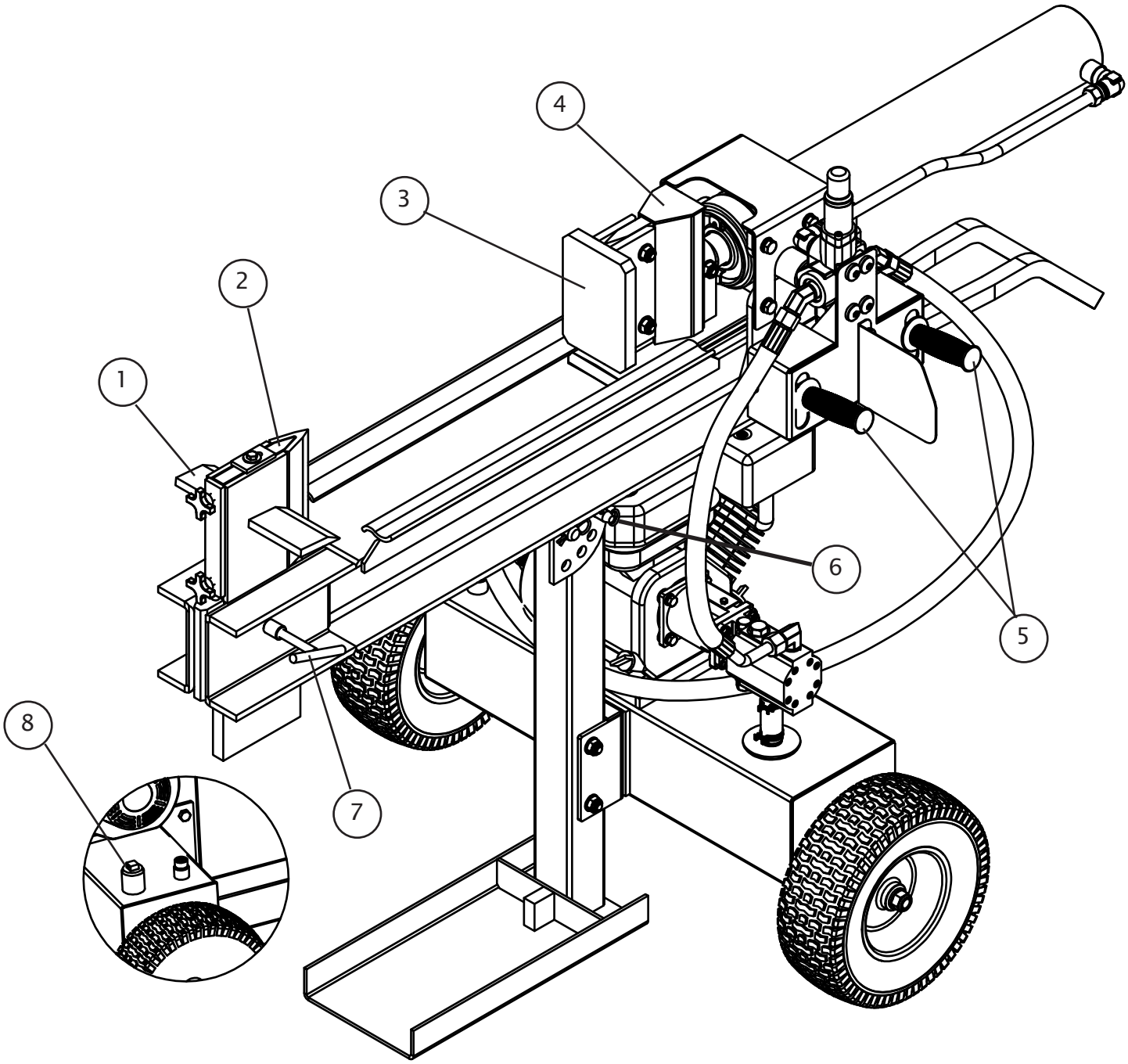
Add Petrol To Engine
Use only clean, fresh, regular unleaded fuel with a minimum 85 octane rating. **DO NOT** mix oil with fuel. Remove the fuel cap and slowly add fuel to the tank. DO NOT overfill allow approximately ¼ inch of space for fuel expansion. Screw on the fuel cap and wipe away any spilled fuel. Before refuelling allow the engine to cool.

STEP 9

Add Hydraulic Oil
The log splitter needs to be on a flat, level surface before adding the hydraulic oil. Remove the oil cap from the hydraulic oil tank. Add 13 litres / 2.86 gallons of hydraulic oil 10WAW32, ASLE H-150, ISO 32 are all acceptable types of fluid. Check the hydraulic oil level. Start engine and use the control lever to extend and retract wedge several times to remove air from the lines. With the wedge retracted, check hydraulic oil level again and fill if necessary.

WARNING: DO NOT remove the hydraulic oil filler cap when the engine is running or hot. Hot oil can escape causing severe burns. Always allow the log splitter to cool completely before removing the hydraulic oil cap.

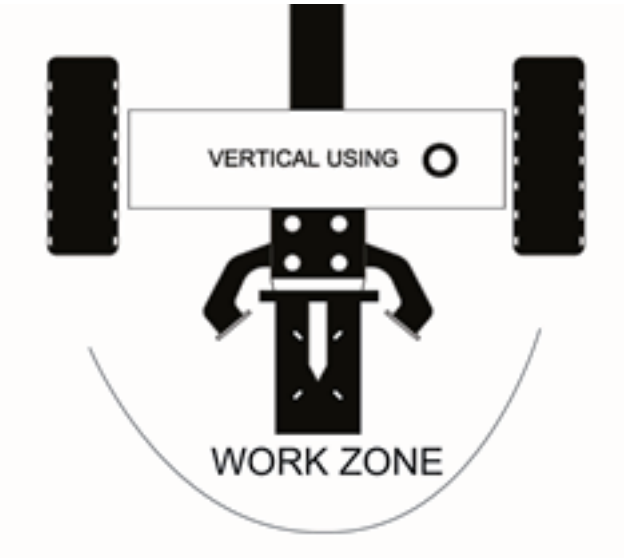
Make sure all fittings are tight and secure before applying pressure.

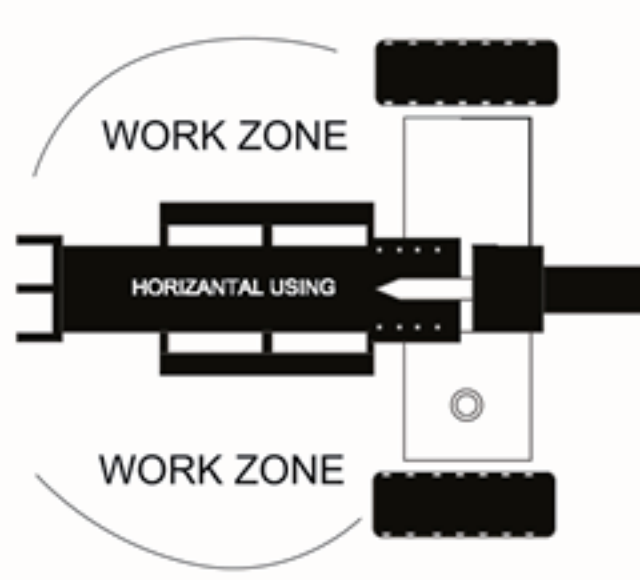


1	4 Way Cover
2	Fixed Blade
3	Pusher Plate
4	Moving Blade
5	Control Levers
6	Beam Locking Pin
7	T Handle
8	Hydraulic Oil Filler

Before operating or using the log splitter, review the instructions below and all safety information. Failure to follow these instructions may result in property damage or injury to the operator or bystanders.

The log splitter must have at least seven feet of clearance from combustible material. It needs to be on a dry and level surface with good footing. Do not work on mud, ice, brush or snow. When using the log splitter the work zone must be maintained at all times.





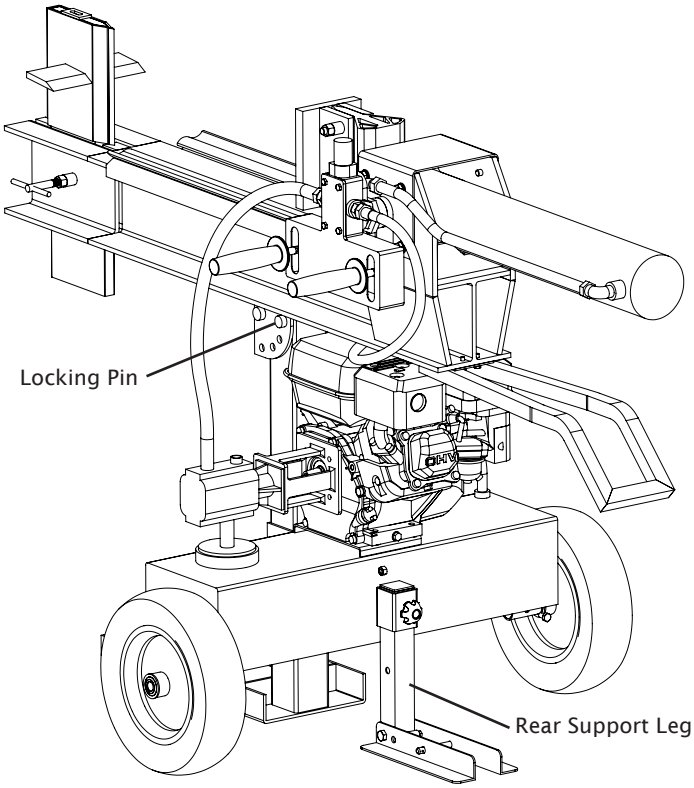
STEP 1

Put the rear support leg in the down position to prevent the log splitter moving during operation and block both tyres.

Adjust the log splitter beam to the desired working position, horizontal or angled. Remove the R Clip and the locking pin then adjust the beam. Replace both the locking pin and R Clip.

When lowering the beam do not allow it to drop as it could crush fingers or cause damage to the log splitter.

The horizontal position is used for lighter logs that can easily be loaded onto the beam. The angled positions are used for heavy logs or large logs that are difficult to lift onto the beam.

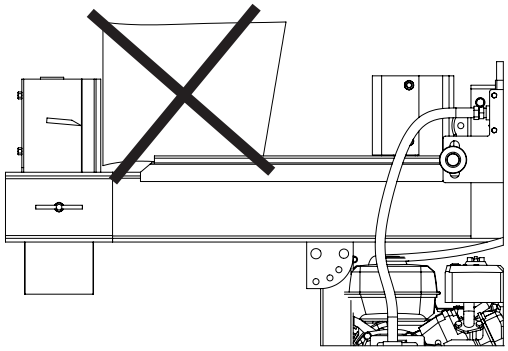


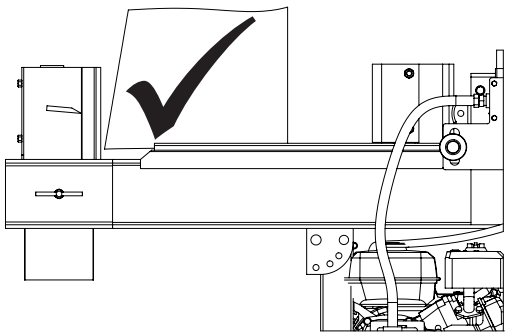
WARNING: Always ensure the beam is locked in position with the locking pin and the R clip in place to secure the locking pin.

Step 2

Start the engine as instructed in the engine manufacturer's handbook / user manual.

The hydraulic oil needs to be above -12C° (10°F) before starting the engine. Cold hydraulic oil can damage the hydraulic pump. If outdoor air temperature is below 0C° (32°F) allow the log splitter to warm up by extending and returning the wedge several times before splitting wood.





STEP 3

Load a log onto the beam. Do not exceed the max log length given on page 2.

When using the splitter in the horizontal position, the log should be placed against the edge of the fixed blade.

For best results the logs to be square cut. However if one end is cut at an angle, then this end should be placed against the fixed blade, so that the pusher plate pushes against the square end.

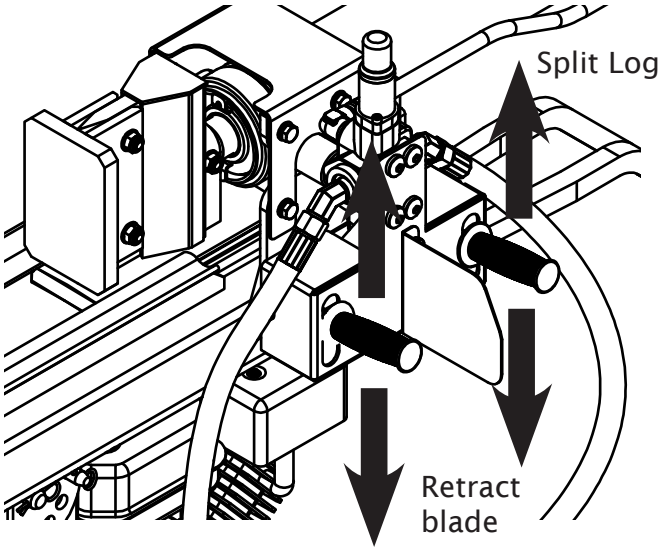
STEP 4

Push both control levers up to split the log.

Push both control levers down to return the moving blade to it's original position.

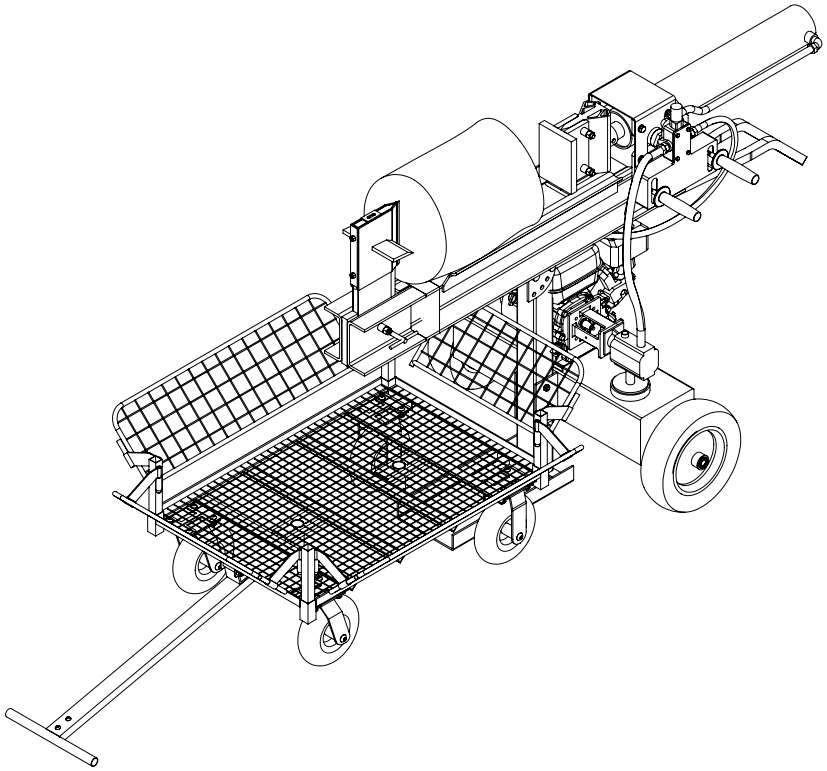
DO NOT attempt to attach rope, cord or any other device to the control levers to attempt to operate the splitter one handed.

DO NOT remove the guard between the levers, this will invalidate the warranty.



WARNING: The wedge can cut through skin and break bones. Keep both hands away from the moving blade, fixed blade and beam slide. Do not allow anyone else in the work zone while operating the splitter.

WARNING: NEVER place a log on the log splitter so that you are splitting across the grain. Always place logs so that you are splitting along the grain.



LOGGING CART

The Forest Master logging cart (sold seperately) can be used with the log splitter to catch the logs as they are split.

This saves back breaking bending down to pick up split logs and makes it easier to keep the work area tidy and safe.

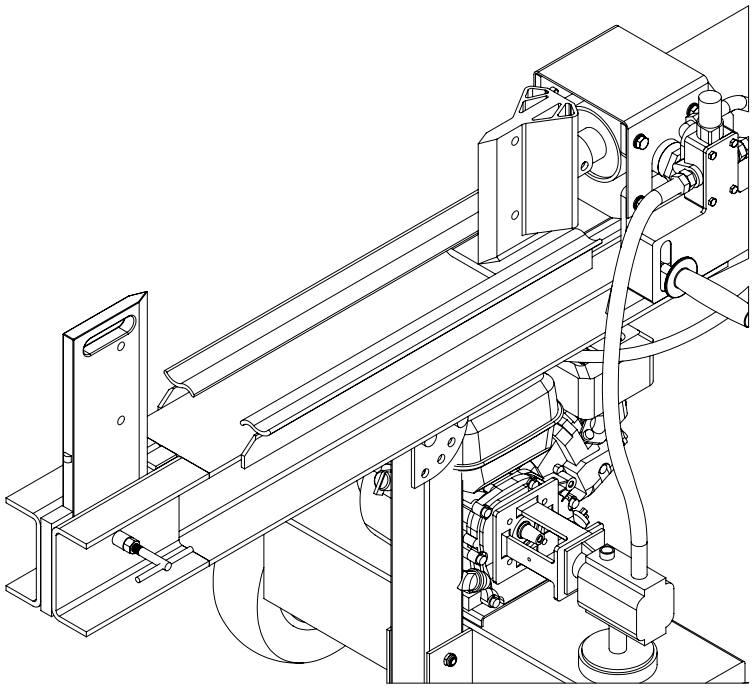
The cart can be used both with the splitter horizontal and angled.

DUOCUT OPERATION

When using the log splitter horizontally, the log splitter can be used as a DUOCUT log splitter, by removing the pusher plate.

The splitter will then split the log with two opposing blades, which increases the efficiency and reduces the time taken to split logs.

It also means that the splitter is very unlikely to get stuck if one of the blades encounters a knot, as it will continue to split with the other blade.



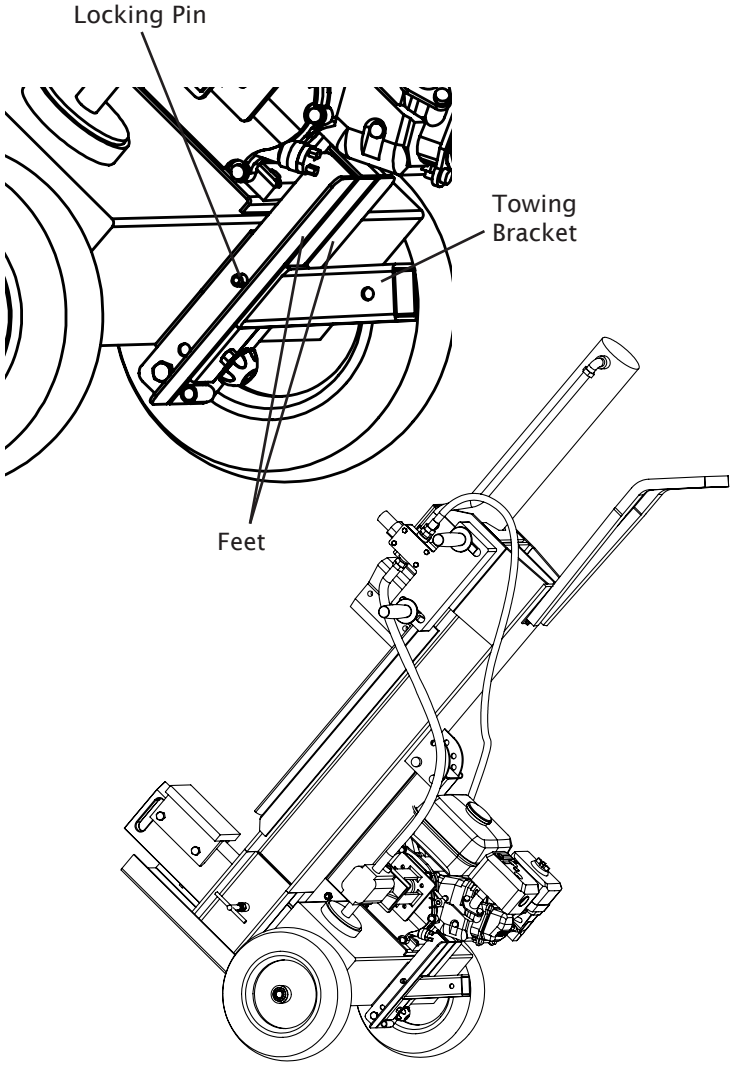
NOTE: If a log gets stuck, embedded or will not split completely. Push the control levers in the reverse direction to retract the moving blade. Undo the two bolts holding the pusher plate to the moving blade. Push the control levers forward to split the log.

MAINTAINING THE DUOCUT BLADE ALIGNMENT DURING SPLITTING

Under most circumstances when using your Duocut electric log splitter there will not be a problem if the blades encounter a knot, as the log splitter will simply stop splitting with the blade that encounters the knot and continue splitting at the other blade.

However there is a possibility that, if the moving Duocut blade encounters a knot at a shallow angle then rather than stopping, the blade may be deflected off line and if splitting continues the moving carriage arms can be bent out of alignment.

When splitting logs, you should therefore monitor the moving duocut blade and if you observe the blade being deflected away from the centreline of the splitter, you should stop splitting immediately. After the blade has returned to its stop you should turn the log through 90 degrees about the long axis and try splitting the log again.



TOWING

To tow the log splitter with an ATV or garden tractor the beam must be locked in the vertical position.

Remove the pin holding the rear support feet horizontal and raise them to the vertical.

Loosen the hand wheel locking the rear support leg and raise the leg.

Place the tow bracket over the rear support leg and align the holes in the tow bracket, support leg and the raised feet so that the pin can be inserted through them all.

NEVER attempt to tow with the beam horizontal or angled.

DO NOT exceed the maximum towing speed of 5 mph.

DO NOT tow the log splitter on public roads or highways.

MOVING BY HAND

When moving the log splitter around by hand, it is easiest if the beam is in the 1st angled position, 30 degrees from the horizontal. The weight is then best distributed for moving it.

Before performing maintenance, the log splitter must be placed in maintenance mode. Turn off the engine and move the control lever forward and backwards to relieve the hydraulic pressure.

After performing any maintenance, make sure all guards, shields and safety features are put back in place before operating the log splitter.

Before operating make sure the tires have the RECOMMENDED TIRE PRESSURE.

Regularly grease axle and wheel bearing area or when needed.

Periodically check all fasteners and hoses for tightness and leaks.

Annually clean and lightly lubricate all moving parts or when needed.

Use a glossy enamel spray paint to touch up scratched or worn painted metal surfaces.

Never exceed load capacity rating of 22 tons it will damage the log splitter.

What	When	How
Hoses	Each Use	Inspect hoses for exposed wire mesh and leaks. Replace all worn or damaged hoses before starting the engine.
Hydraulic Fittings	Each Use	Inspect fittings for cracks and leaks. Replace all damaged fittings before starting the engine.
Nuts and Bolts	Each Use	Check for loose bolts, tighten before operating.
Beam	Each Use	Apply grease to beam surface.
Moving Parts	Each Use	Clear debris from log splitter.

Refer to the Engine Owner's Manual for engine maintenance.

STORAGE

Before storing make sure the log splitter is clean and dry for years of trouble free service.

Lightly lubricate all log splitter surfaces and moving parts to prevent rust.

If the log splitter is to be stored for 1 month or more, drain the fuel from the engine. If left standing for a long period, unleaded fuel oxidises which can subsequently cause probles starting the engine. Additives are available for petrol that can prevent this.

Store indoors or protected area during severe weather and winter months.

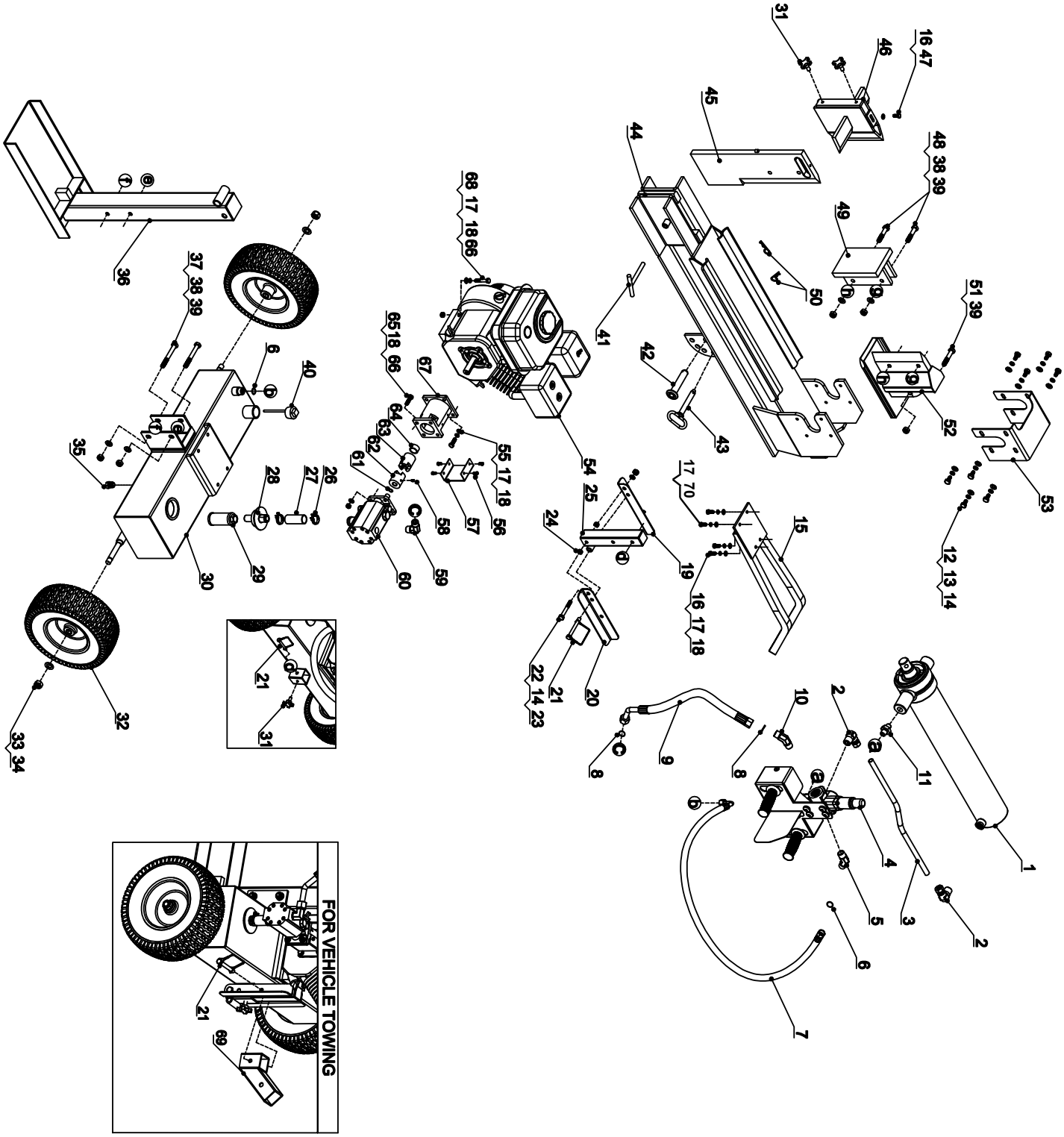
IMPORTANT: If a part needs replacement, only use parts that meet the manufacturer's specifications. Replacement parts that do not meet specifications may result in a safety hazard or poor operations.

TROUBLESHOOTING

Problem	Possible Causes
Cylinder rod will not move	Causes: A,D,E,H,J
Slow cylinder rod speed when extending or retracting	Causes: A,B,C,H,I,K,L,M
Wood will not split or splits extremely slowly	Causes: A,B,C,F,I,K
Engine bogs down during splitting	Causes: G,M
Engine stalls under low load condition	Causes: D,E,M,N,O
Engine starting problem	Causes: O

Cause	Solution
A-Insufficient oil to pump	Check oil level in reservoir
B-Air in oil	Check oil level in reservoir
C-Excessive pump inlet vacuum	Check pump inlet hose for blockage or kinks
D-Blocked hydraulic lines	Flush and clean the splitter hydraulic system
E-Blocked control valve	Flush and clean the splitter hydraulic system
F-Low control valve setting	Adjust control valve with a pressure gauge
G-High control valve setting	Adjust control valve with a pressure gauge
H-Damaged control valve	Return control valve for authorized repair
I-Internal control valve leak	Return control valve for authorized repair
J-Internal cylinder leak	Return cylinder for authorized repair
K-Internally damaged cylinder	Return cylinder for authorized repair
L-Hydraulic oil filter clogged	Remove and clean the hydraulic oil filter
M-Engine Control out of adjustment	Adjust idle control nuts
N-Engine is loaded during idle down mode	Use shorter log length (550 mm / 21.65” or less) to allow engine to speed up before contact.
O-Engine operation	Refer to the engine owner’s manual

Exploded View



Part #	Description	Quantity
1	Cylinder Assembly	1
2	Connector	2
3	Metal Hydraulic Hose	1
4	Control Valve	1
5	130˚ Elbow Connector (M24)	1
6	O Ring Ø14x2.5	2
7	Hydraulic Hose(valve-Oil Tank)	1
8	O Ring Ø11.2x2.4	2
9	Hydraulic Hose(valve-Gear Pump)	1
10	130˚ Elbow Connector (M22)	1
11	Connector	1
12	Hex Bolt M10x20	8
13	Lock Washer Ø10	8
14	Flat Washer Ø10	9
15	Handrail Assembly	1
16	Hex Bolt M8x20	3
17	Lock Washer Ø8	12
18	Flat Washer Ø8	14
19	Bottom Plate of Small Support Leg (Right)	1
20	Bottom Plate of Small Support Leg (Left)	1
21	Lock Pin	2
22	Hex Bolt M10x75	1
23	Nylon Lock Nut M10	1
24	Bushing	2
25	Small Support Leg	1
26	Clamp	2
27	Hydraulic Hose	1
28	Connector of Oil Filter	1
29	Oil Filter	1
30	Oil Tank	1
31	Hand Wheel	3
32	Wheel	2
33	Flat Washer Ø16	2
34	Nylon Lock Nut M16	2
35	Oil Plug	1
36	Large Support Leg	1

Part #	Description	Quantity
37	Hex Bolt M12x100	2
38	Flat Washer Ø12	4
39	Nylon Lock Nut M12	5
40	Oil Bolt	1
41	Press Handle	1
42	Pin	1
43	Hinge Pin	1
44	Beam	1
45	Fixed Blade	1
46	4 Way Cover Cross Wedge	1
47	Big Flat Washer Ø8	1
48	Hex Bolt M12x60	2
49	Pusher Plate	1
50	R Pin	2
51	Hex Bolt M12x65	1
52	Moving Blade	1
53	Cylinder Cover	1
54	Engine	1
55	Hex Bolt M8x25	4
56	Hex Bolt M5x10	4
57	Coupler Cover	1
58	Screw M6x10	1
59	90˚ Elbow Connector (M22)	1
60	Gear Pump	1
61	Steel Wire Snap Ring for Shaft	1
62	Gear Coupler	1
63	Engine Coupler	1
64	Engine Bushing	1
65	Hex Bolt M8x30	4
66	Nylon Lock Nut M8	8
67	Gear Pump Stand	1
68	Hex Bolt M8x45	4
70	Hex Bolt M8x40	2

This product carries a limited parts warranty for 1 year from the date of purchase. Please keep your proof of purchase as this will be required for any claim.

Should this product become defective, contact the store where it was purchased and either replacement parts will be issued, it will be repaired or it will be replaced free of charge.

IMPORTANT: NO RESPONSIBILITY IS ACCEPTED FOR INCORRECT USE OF THIS PRODUCT.

THIS WARRANTY DOES NOT COVER:

1. Any part that has become inoperative due to misuse, abuse, neglect, accident, improper maintenance, or alteration; or
2. The unit, if it has not been operated and/or maintained in accordance with the owner's manual; or
3. Normal wear;
4. Routine maintenance items such as lubricants, blade sharpening;
5. Normal deterioration of the exterior finish due to use or exposure.

TRANSPORTATION CHARGES:

Transportation charges for the movement of any power equipment unit or attachment are the responsibility of the purchaser. The purchaser must pay transportation charges for any part submitted for replacement under this warranty unless such return is requested by Forest Master.

NOTE: It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice.

Manufactured under license for Forest Master Limited.

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